What is claimed is:

1. A semiconductor wafer cleaning apparatus comprising:

a loading unit having a cassette loaded thereon, a plurality of semiconductor wafers being mounted on the cassette;

a moving mechanism that extracts the semiconductor wafers mounted on the cassette of the loading unit and moves the extracted semiconductor wafers into a loader spaced apart from the loading unit;

an inner bath spaced apart from the loader, in which the semiconductor wafers are cleaned with a cleaning solution;

a marangoni dryer including a hood, that moves the semiconductor wafers from the loader into the inner bath, the marangoni dryer movable in ±X-, ±Y-, and ±Z-directions to be tightly sealed to the inner bath; and

a knife that supports the semiconductor wafers loaded into the inner bath at a lower portion of the inner bath, and moves the semiconductor wafers up and down.

2. The semiconductor wafer cleaning apparatus according to claim 1, wherein the moving mechanism comprises:

a pad that extracts the semiconductor wafers from the cassette;

a first moving element including a revolving body, that rotates and thereby elevates the extracted semiconductor wafers extracted by the pad; and

a second moving element that moves the semiconductor wafers rotated upward by the first moving element into a loader.

3. The semiconductor wafer cleaning apparatus according to claim 2, wherein the second moving element comprises:

a clutch movable in the ±X-, ±Y-, and ±Z-directions, that picks up the semiconductor wafers rotated and elevated by the first moving element; and

rails movable in the ±X-, ±Y-, and ±Z-directions, that move the semiconductor wafers picked-up by the clutch into the loader.

4. The semiconductor wafer cleaning apparatus according to claim 1, wherein the loader includes a pusher that raises and lowers the mounted semiconductor wafers so that the marangoni dryer picks up the semiconductor wafers.

5. The semiconductor wafer cleaning apparatus according to claim 1, wherein the hood of the marangoni dryer includes slots and a locking unit that hold the semiconductor wafers, the marangoni dryer further comprising:

a drying solution supply plate having a plurality of holes so that the drying solution is uniformly sprayed onto the mounted semiconductor wafers in the hood; and

a drying solution supply nozzle installed on the drying solution supply plate.

6. The semiconductor wafer cleaning apparatus according to claim 5, wherein the drying solution comprises isopropyl alcohol.

7. The semiconductor wafer cleaning apparatus according to claim 1, wherein the inner bath comprises:

recess portions formed in both sidewalls of the inner bath; and

outer baths installed at both sides of the inner bath, aligned with the recess portions.

8. The semiconductor wafer cleaning apparatus according to claim 7, further comprising exhaust lines installed at rear walls of the outer baths, that uniformly exhaust the outer baths.

9. The semiconductor wafer cleaning apparatus according to claim 1, wherein the cleaning solution comprises a chemical solution or deionized water.

10. A method of cleaning a semiconductor wafer comprising:

loading a cassette into a loading unit, the cassette holding a plurality of semiconductor wafers;

extracting the semiconductor wafers held on the cassette of the loading unit;

moving the extracted semiconductor wafers into a loader spaced apart from the loading unit;

mounting the semiconductor wafers from the loader into a marangoni dryer;

moving the marangoni dryer including the semiconductor wafers mounted therein, into an inner bath spaced apart from the loader;

moving the semiconductor wafers from the marangoni dryer into the inner bath;

cleaning the semiconductor wafers in the inner bath with a cleaning solution;

lowering the marangoni dryer to be closely adhered and sealed to the inner bath; and

lifting the semiconductor wafers from the inner bath containing the cleaning solution while drying solution fumes are sprayed from a top of the marangoni dryer, so that the cleaning solution is removed from the semiconductor wafers using a difference in surface tension between the drying solution and the cleaning solution.

11. The method according to claim 10, wherein said mounting comprises moving the loader with a pusher installed under the loader, to move the semiconductor wafers into the marangoni dryer for mounting.

12. The method according to claim 10, wherein said lifting comprises lifting the semiconductor wafers with a knife installed in a bottom portion of the inner bath.

13. The method according to claim 10, wherein the cleaning solution comprises a chemical solution or de-ionized water, and the drying solution comprises isopropyl alcohol.

14. The method according to claim 13, wherein nitrogen is also sprayed from the top of the marangoni dryer during said lifting.

15. A method of cleaning a semiconductor wafer comprising:

loading a cassette into a loading unit, the cassette holding a plurality of semiconductor wafers;

extracting the semiconductor wafers held on the cassette of the loading unit;

moving the extracted semiconductor wafers into a loader spaced apart from the loading unit;

mounting the semiconductor wafers from the loader into a marangoni dryer;

moving the marangoni dryer including the semiconductor wafers mounted therein, into an inner bath spaced apart from the loader;

moving the semiconductor wafers from the marangoni dryer into the inner bath;

cleaning the semiconductor wafers in the inner bath with a cleaning solution;

lowering the marangoni dryer to be closely adhered and sealed to the inner bath; and

slowly draining the cleaning solution from the inner bath while drying solution fumes are sprayed from a top of the marangoni dryer, so that the cleaning solution is removed from the semiconductor wafers using a difference in surface tension between the drying solution and the cleaning solution.

16. The method according to claim 15, wherein said slowly draining comprises uniformly exhausting the inner bath via an exhaust line installed in outer baths mounted at both sides of the inner bath.

17. The method according to claim 15, wherein the cleaning solution comprises a chemical solution or de-ionized water, and the drying solution comprises isopropyl alcohol.

18. The method according to claim 17, wherein nitrogen is also sprayed from the top of the marangoni dryer during said draining.

19. A semiconductor wafer cleaning apparatus comprising:

a bath that contains a cleaning solution;

a marangoni dryer including a hood, the marangoni dryer being movable to pick up semiconductor wafers loaded in a cassette and being movable to transport the picked up semiconductor wafers to the bath and so that the hood is tightly sealed to the bath; and

a supply mechanism that uniformly provides a drying solution to the semiconductor wafers from an upper portion of the hood, when the marangoni dryer is tightly sealed to the bath.

20. The semiconductor wafer cleaning apparatus of claim 19, wherein the cleaning solution comprises a chemical solution or deionized water, and the drying solution comprises isopropyl alcohol.